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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/468,452	12/21/1999	Arthur W. Chester	10102-2	3656

7590 06/30/2003

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EXAMINER
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ILDEBRANDO, CHRISTINA A

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 06/30/2003

18

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicant(s)

09/468,452

Applicant(s)

CHESTER ET AL.

Examiner

Christina Ildebrando

Art Unit

1725

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 May 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-22 and 24-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-22 and 24-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 16.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 22, 2003 has been entered.

### ***Response to Amendment***

2. It is noted that the amendment filed 5/23/03 contains claim 23. However, it is noted that claim 23 was cancelled in Paper No. 8 and is no longer pending. Currently, claims 17-22 and 24-29 are pending.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 17-18, 21-22, and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vasalos et al.

Vasalos et al. (US 4,153,535) discloses a catalyst composition useful in catalytic cracking processes. The composition comprises a molecular sieve cracking catalyst and

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a metallic reactant and preferably contains a metallic promoter (column 3, lines 39-45 and column 4, lines 20-40). Vasalos et al. teaches that both the metallic reactant and metallic promoter can be incorporated into the molecular sieve cracking catalyst (column 14, lines 46-55). The metallic promoter and metallic reactant may be incorporated by ion exchange or impregnation (column 15, lines 6-15). The average particle size of the composition is in the range of from about 20-150 microns (column 9, lines 35-40).

Examples of a suitable metallic promoter include vanadium and compounds thereof (column 5, lines 1-5). Examples of suitable reactants include rare earth metals (column 5, lines 18-25). Cerium is exemplified (column 26, Example 4). Vasalos et al. teaches that when the promoter comprises vanadium, it is present in an amount in the range of from about 10pmm to about 10 weight percent and when the reactant comprises rare earth metals, it is present in an amount in the range of from about 0.2 to 10 weight percent (column 6, lines 43-48 and column 7, lines 23-32).

Suitable molecular sieves include Y-type zeolites and ultrastable, large-pore crystalline aluminosilicates (column 9, lines 62-68). Vasalos et al. teaches a silica to alumina ratio of at least about 2-12:1, preferably 4-6:1 (column 9, lines 50-55). The composition can further comprise a matrix (column 4, lines 49-65).

The difference between the reference and the claims is that the reference does not specifically disclose the claimed combination of cerium and vanadium. However, the reference does teach the use of vanadium as the metallic promoter and cerium as a reactant, which both can be combined with the molecular sieve. The claims differ from

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the reference by reciting a specific species and a more limited genus than the reference. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to select any of the species taught by the reference, including those of the claims, because an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and, thus, the same use as the genus as a whole.

5. Claims 19-20 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vasalos et al. as applied to claims 17-18, 21-22, and 24-27 above, and further in view of Chu or Miller et al.

Vasalos et al. is applied as above for claims 17-18, 21-22, and 24-27 above.

Vasalos et al. does not specifically teach that the ultrastable large pore crystalline aluminosilicate is ultrastable Y (USY).

Chu (US 4,549,956) teaches that conventional cracking catalysts include large pore zeolites such as zeolite Y in its ultrastable form (column 5, line 56 – column 6, line 10).

Miller et al. (US 4,340,465) teaches that conventional cracking catalysts include large pore zeolites, including Y-type zeolite and preferably USY (column 7, lines 23-38).

It would have been obvious to one having ordinary skill in the art to modify the invention of Vasalos et al. in light of the teachings of either Chu or Miller et al. Vasalos et al. teaches the suitability of large pore zeolites in ultrastable form. Both Chu and Miller et al. teach that USY is a large pore zeolite conventionally used in catalytic cracking processes. Therefore, one of ordinary skill would have been motivated to use

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USY as the cracking catalyst component in the composition taught by Vasalos et al. Because all three compositions taught are useful in the same process, catalytic cracking, one would have reasonable expectation of success from the combination. With respect to the unit cell sizes, alpha values, and silica to alumina ratios instantly claimed, it is the examiner's position that the USY taught by the Chu and Miller et al. references would inherently have the values instantly claimed.

### ***Response to Arguments***

6. Applicant's arguments filed 5/22/03 have been fully considered but they are not persuasive.

Applicant argues that Vasalos et al. teaches that care should be taken to provide the metallic promoter or reactant on the molecular sieve in a manner which does not adversely affect the cracking activity and selectivity of the catalyst. Applicant argues that, prior to the instant invention, the inclusion of vanadium was known to result on a loss of activity of the catalyst and therefore argues that the Vasalos et al. reference teaches one skilled in the art that where the promoter is vanadium, vanadium is not placed on the molecular sieve.

These arguments have been considered but are not persuasive. The fact that Vasalos et al. teach the use of vanadium as a promoter which can be combined with the molecular sieve would provide one of ordinary skill with motivation to use it. The references cited by applicant are not relevant in light of the teachings of the Vasalos et al. reference. With regards to applicant's statement that Vasalos et al. teaches that

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where the promoter is vanadium, vanadium is not placed on the molecular sieve, it is the position of the examiner that there is no teaching in the reference to support this conclusion. The discussion relied upon by applicant does not detail that certain promoters cannot be placed upon the molecular sieve.

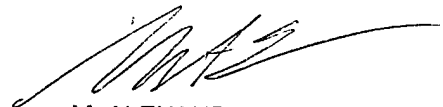
***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Ildebrando whose telephone number is (703) 305-0469. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

CAI  
June 26, 2003



M. ALEXANDRA ELVE  
PRIMARY EXAMINER